University of Louisiana at Monroe

College of Pharmacy Animal Vivarium

Standard Operating Procedure for Rodent Breeding

The Standard Operating Procedure (SOP) is setup to provide guidance for all rodent breeding in the University of Louisiana at Monroe College of Pharmacy Animal Vivarium. This applies to all ULM personnel who are involved in the breeding of rodents.

General Information and Procedures:

Parameters	Mouse	Rat
Sexual Maturity	**~7 weeks**	**~13 weeks**
Estrous Cycle Frequency and Length	**4-5 days for 10 hours**	**5 days for 13-15 hours**
Gestation	**19-21 days**	**21-23 days**
Weaning Age	**21 days (even though we wean at ~21 days, we often don't sex the pups till 28 days to aid in gender identification)**	**21 days (even though we wean at ~21 days, we often don't sex the pups till 28 days to aid in gender identification)**
Retirement of breeders	**8-10 months**	**10-12 months**

1. Mating pairs may be setup with 1 male and 1 female or harem breeding where there is 1 male and multiple females.
2. If males and females are housed separately, it is recommended to put the female in the male's cage for breeding. Female mice can become territorial which may become a barrier to successful mating.
3. Rodents breed most frequently at night so limit any interruptions during 6PM to 6AM when our lighting systems automatically turn lights off in all animal rooms to maintain the animal's uniform diurnal cycle.
4. Maintain good breeding records to maximize successful colony management.
5. Routinely check female rodents for pregnancy. If checking for a vaginal plug to confirm mating, females should be checked early in the morning because the plugs typically fall out within 12 hours. If the pregnancy is checked via a visual swelling of the abdomen, begin checking at 2 weeks after the male and females have been together.
6. Once pregnancy is confirmed, pull the female and place in cages. The table containing minimum space recommendations will show how many females and litters will fit in each cage we have. Rats will be one per cage and mice may be 1-3 litters per cage depending on size.
7. At 21 days, mothers should be separated from pups. The mother can then be rested or placed back in cage with a male.
8. At 21 days, pups can be sexed for gender identification, but it is the common practice here to wait for 25-28 days for easier identification.
9. All cage density is to follow the minimum space recommendations based on the 8th Guide for the Care and Use of Laboratory Animals.
10. Fresh breeders are ordered each year to ensure the long-term genetic heterogeneity of outbred colonies.

Minimum Space Recommendations for Lab Animals						
			Floor Area/Animal	7.5"x11.5"=86.25in^2	9"x17.5"=157.5in^2	8.5"X17"=144.5in^2
Animals		Size (grams)	in^2	Small Clear	Large Clear	HEPA filtered Caging
Mice	Groups	<10	6	14	26	24
		10-15	8	10	19	18
		15-25	12	7	13	12
		>25	>15	5	10	9
	mom+pups		51	1	3	2

			Floor Area/Animal	8.5"x17"=144.5in^2
		Size (grams)	in^2	Large Clear/White
Rats	Groups	<100	17	8
		100-200	23	6
		200-300	29	4
		300-400	40	3
		400-500	60	2
		>500	>70	2
	mom+pups		124	1

REFERENCES

Guide for the Care and Use of Laboratory Animals (Guide)

AHCS/NINDS/NIH Rodent Breeding Policy (AHCS)

AALAS ALAT Training Manual

8th Guide for the Care and Use of Laboratory Animals